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Navy Case No. 82,974

In the United States Patent and Trademark Office

In re: Bubb et al
Serial No.: 10/059,978
Filed: January 29, 2002
For: Deposition of Thin Films Using an Infrared Laser

Examiner: M.L.Padgett
Art Unit: 1762
Date: August 4, 2005

Second Amendment After Final Rejection

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20230:

Renewed Petition under 37 CFR 1.137(b)


Reconsideration of the dismissed Petition Decision dated July 22, 2005, is requested.

Enclosed is a reply entitled "Second Amendment After Final Rejection" dated August 4, 2005, an explanatory Letter dated January 27, 2005, and a Notice of Appeal for this application.

The entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(b) was unintentional. Please charge the appropriate Petition and Notice of Appeal fees to our account # 50 - 0281.

This is also a request for continued examination under 37 CFR 1.114.

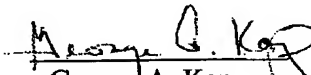
Respectfully submitted,


George A. Kap
Reg. No. 22,898
Attorney for Applicants Phone:
Phone: (202)-404-1555

Certificate of Facsimile Transmission

I hereby certify that this amendment is being faxed to PTO on the date shown below:

8-4-05
Date


George A. Kap

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Second Amendment After Final Rejection

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20230:

Sir:

In response to the final rejection dated October 6, 2003, please amend the claims of the above-identified patent application as follows:

Amendments to the claims are reflected in the listing of claims which begins on p. 2 of this paper.

Remarks/Arguments begin on p. 4 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1-26(cancelled):

27. (new) A method for transferring a material onto a substrate comprising the steps of:

- (a) directing light of a wavelength in the infrared region which is resonant with a vibrational mode at a target starting material,
- (b) vaporizing the target material without decomposing it, and
- (c) depositing the vaporized material on a substrate in solid form that is essentially same chemically as the starting target material.

28. (new) The method of claim 27 wherein the vibrational mode is in the infrared region of 1-15 microns.

29. (new) The method of claim 27 wherein the vibrational mode is in the infrared region of 2-10 microns.

30. (new) The method of claim 27 wherein the material is selected from the group consisting of organic, inorganic, biological materials and mixtures thereof.

31. (new) The method of claim 27 wherein the material is polymeric.

32. (new) The method of claim 27 including the steps of subjecting the target and the substrate to an environment selected from the group consisting of sub-atmospheric, atmospheric and above atmospheric pressure and locating the target and the substrate in the vicinity of each other so that the vaporized material from the target can be deposited on the substrate by free fall; and the

temperature of the substrate is such that the vaporized material settles on the substrate and becomes solid.

33. (new) The method of claim 32 wherein the environment is sub-atmospheric pressure and the sub-atmospheric pressure is on the order of 4×10^{-8} Torr.

34. (new) The method of claim 27 wherein thickness of the coating on the substrate is in the range of about 10 angstroms to 1 micron.

35. (new) The method of claim 34 wherein the light is issued by a tunable pulsed laser and deposition rate of the material on the substrate is in the range of about 1 to 300 mg/cm²/macropulse.

36. (new) The method of claim 27 wherein the light is provided by a laser source delivering a stream of pulses of 100 fs to 5 ms duration at pulse reactivation frequencies ranging from 1 Hz to 3MHz.

37. (new) The method of claim 27 wherein the light is provided by a laser operating in a continuous wave mode.

Remarks/Arguments

Claims presently pending herein, before any action on this amendment, are claims 1, 2, 5-12 and 14-26. On entry of this Second Amendment After Final Rejection, the pending claims will be cancelled and the new pending claims will be claims 27-37, which are believed to be allowable for reasons set forth below.

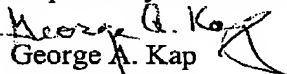
Neither the Donley, the Blanchet-Fincher nor the Gower references disclose nor suggest the invention claimed herein, singly or in combination. The Donley reference pertains to providing a thin lubricious film on a substrate. In the proposed new method claim 27, the invention includes the steps of directing light of a wavelength in the infrared region which is resonant with a vibrational mode at a target starting material, vaporizing the target material without decomposing it, and depositing the vaporized material on a substrate in solid form that is essentially same chemically as the starting target material. As should be apparent, the Donley reference does not disclose any of the steps claimed herein. Although the Donley reference does disclose that the produced thin films have the same chemical composition as the target, as at bottom of col. 2, it does not disclose how this is done. As noted in the specification, this invention is possible to carry out apparently because the starting material is maintained at ground level and is not elevated to the excited state where chemical change would take place through rupture of the bonds and possibly in other ways. This argument also applies to the Blanchet-Fincher reference in spite of the statement in the latter that the IR spectra of the ablated, spin coated and spray coated films that were substantially identical, which appears in lines 50-52 of col. 5.

The final rejection of claims 1, 2, 5-21 and 14-26 over the Donley reference in view of

the Blanchet-Fincher reference, or vice versa, optionally considering the Gower reference, is not understood. It is not understood, inter alia, if the Gower reference is part of this rejection. If it is, then the Gower reference is not properly combinable with the Donley and the Blanchet-Fincher references, being directed to a non-analogous art, i.e., drilling holes in electrical packages.

At bottom of p. 4 of the office action, the Examiner appears to indicate that the claim language is not as specific as it should be. If the Examiner has any suggestion pertaining to the use of more appropriate language, such suggestions will readily be considered. The only change in the claims herein, compared to what appears in the Amendment After Final Rejection dated March 18, 2005, appears in claim 37 wherein the claim was made dependent on claim 27 wherein the light is identified as being provided by the laser operating in a continuous wave mode.

Respectfully submitted,


George A. Kap

Reg. No. 22,898

Attorney for Applicants Phone:

Phone : (202)-404-1555